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POTASH COMPANY OF CANADA Ltd., Royal Bank Bldg., MONTREAL

Better Crops with PLANT FOOD

The Whole Truth—Not Selected Truth

R. H. STINCHFIELD, *Managing Editor* SID NOBLE, *Editor*

Editorial Offices: 19 West 44th Street, New York

VOLUME XIX NUMBER FIVE

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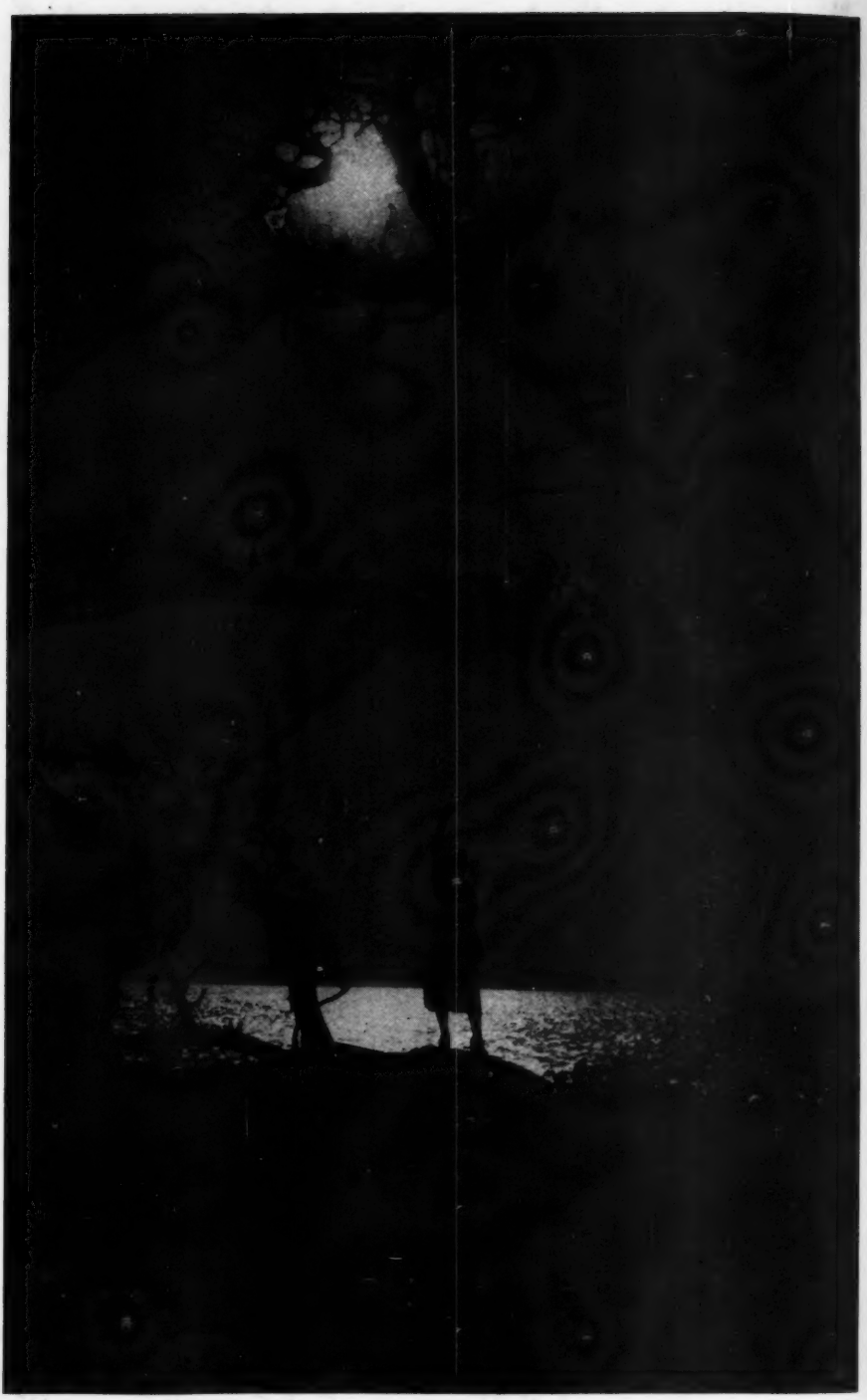

MANY OF US WISH WE TOO MIGHT SALUTE A SOUTHERN CLIME.

Better Crops with PLANT FOOD

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VOL. XIX NEW YORK, DEC., 1933-JAN., 1934 No. 5

Jeff extends Greetings

Wreaths & Resolves

By Jeff McDermid

JUVENILES are not the only ones who spoil their angelic Christmas behavior soon after New Years. If we made the Holidays more than a truce amid hostilities or its spirit more than a fleeting sentiment in a world of resentment, there would be less broken trinkets and fewer forgotten resolutions.

Starting out in the year 1934, we all admit regardless of creed or partisanship that: (1) the past century has seen more new man-made marvels of a kind to upset preconceived ideas of physics and chemistry and bromidic logic than any similar period since Father Time dulled his scythe in the grass of Eden; and (2) that no age has produced more abuse of privilege along with greater diffusion of education. Granted likewise that we are largely agreed on making another January resolution, I am sure it will be as acceptable as any if we raise a toast and sign the pledge in Germanic language — "Etwas Neues" — Something New.

Then let it be the slogan while the need prevails! Etwas Neues! Some-

thing New—not merely something freshly varnished, brightly tinseled, quaintly gay, and temporarily ravishing; not a shibboleth to become shabby, a code to become corroded, or a vintage vision that ends in a racking headache. Not the decorations of a festive tree, soon to be boxed away and put in the attic against another revel. Not the smears of a bold signature soon defaulted, nor the toys of which we soon shall tire. Not the animation of the hectic hour, soon jaded, nor the unbalanced hopes of the ultra-optimist. But a calmer, sounder, deeper, more universal, and homely spirit which will make the ensuing months fruitful of the greatest good to the greatest number.

Probably the greatest upheavals and changes in social and civic life have come through stern resolves that never showed up on New Years Day. There has been no sharp line of demarcation between the period when evils ceased or waned and right triumphed or became ascendent. This is because individuals may rashly lay plans and make promises, while the scene shifts slowly and majestically in the mass of opinion and custom. Yet nobody at present can fail to hear a ground swell of some portentous kind, presaging some mighty alteration in the rules of the game. Perhaps it is because so many feeble personal resolutions and aspirations have been so long submerged, and so many Christmas holidays have been followed by fifty-one more weeks of injustice and disillusionment.

FROM long custom it has been common to chant the chorus of the bells at this interval of the year—ring out the old, ring in the new. Of late the cash register has done most of the ringing, however, and the clang of the holy bells has been lost in the clamor of commerce. Certain classes of society, certain types of minds, have refused to reject the old, however indecent and moldy; and others in the minority have yearned to usher in the new but lacked the power or the plan to perform the change.

On the whole we may be heartily thankful for the past. It points out our mistakes and provides a heritage of tradition to give us the "guts" to do and dare. Call the latter family pride, ancestral glory, or patriotic fervor—it matters not; the answer is that the high lights of achievement and character give the lie to those who say our nation cannot emerge with safer programs of social control.

I AM quite aware that able critics could out-argue me easily on using our national history as a bolster for confidence in our ability to meet present problems. They would no doubt point out that some battles were lost because generals indulged in liquid courage, or that some members of congress sold out to special privilege or were too dumb to match the hired wits of the wealthy.

But I shall not meet them on this ground nor refer to the sad winter at Valley Forge and such ordinary examples. I am persuaded that a nation's inherited qualities often suffer as do sports and hybrids, and that distorted specimens often develop from pretty sound preceding stock. Yet we have had many examples of public statesmanship that molded policies leading to higher conditions for humanity. If this were not so I might be in prison for debt and you might be in the stocks for talking too freely.

My contention in this humble treatise is that the real worth of a nation in any era and the inherent qualities which provide the pressure for reform and improvement come from the common run of folks, like yours and mine through the ages. Such discerning citizens pursuing the humble roles of life detect the false from the true in statesmanship regardless of the newspapers; but still more important than that, they afford the living examples to their associates which in

the end determine the final destiny of the country through its mass opinions. I need not paraphrase Abe Lincoln in this connection, only to say that "fooling all of the people all of the time" is impossible because of humanity's tendency to sprout upward.

It is idle to refute this by citations of recent mob violence or of how expectant some folks got on December 5 over Utah's legislation. You might as well try to disprove Franklin's place in history by his susceptibility to the gentle sex. In fact it was right on this

warped line of deduction that we got mired in prohibition fervor. Being "social" and being socially-minded are two quite distinct attributes of human character. And every time excesses are evident the majority of folks rebel and soon correct the cause of it. This has no bearing in our discussion of the inherent faith we must have in the right-minded attitudes of citizens, and without it we would not produce any statesmen.

There is no truer test of the power of tradition in our country than in evidences of self-sacrifice by ordinary citizens. We need not argue the fine points of the secret causes for a war to give credit to the ones who suffered willingly because of it.

My Father and four of his brothers and three of my Mother's brothers served in the Civil War. I had a dear friend who died at Chateau Thierry.

THE letters from my uncles saved tenderly by Mother on the old farm through the anxious days and the mute testimony of the empty sleeve, the shattered nerves, and the broken youth that was never repaired come back to me as ample proof of their unselfish devotion to ideals.

One of my uncles had planned to study law with his savings from hired labor had the war not interrupted his plans. During the stern campaigns and the camaraderie of the campfire and from associations of ill repute on the lower banks of Old Man River, he acquired a craving for hard likker. It swept his life away and made his a sacrifice of soul as well as body. Yet he stood to the last on dress parades in the old Grand Army hall with noble salute to Old Glory. Deeper than the scars of experience was the tradition of his tribe, to respect and honor the flag for what it represented.

My Father had an inventive turn of mind and liked to ponder over books. Denied proper education before the war, he came out of it a man obliged to perform a man's tasks. He had slept in fever swamps and rotten bayous, tramped with Sherman on weary rounds, and contracted chronic palsy and defective eyesight.

I can see him now as he was in middle years, bending over the oilcloth in the kitchen trying hard to decipher books he yearned to read with ease so that he might devour many of them —but in vain. And again I remember the wrapping paper he saved and smoothed out for drafting his pet idea, perpetual motion. I can see those queer circles yet, drawn in ragged lines, with the problem of the self-rotated wheel forever unsolved but rekindling his zeal to fresh efforts each

winter evening.

Simplicity and foolishness maybe; perhaps provincial and impractical. But as an example of kindly, trusting, constant optimism and the power of man to grope upward against bitter defeat—these, I say, are my heritage, homespun and clumsy as they are.

It is my conviction that every man who reads this will treasure similar memories of those who walked the common road and made it brighter by their presence—not just for Christmas, which they did, but forever and always.

NOT only do we honor this tradition, which we all possess in some degree, because it gives us courage and confidence in ourselves, but the errors and tragedies suffered by those before us sharpen our zeal for making restitution. We must take "revenge" upon the evil shadows that beset the past generation and banish them from the one to come. This, in short is national and personal tradition applied to the statecraft of the hour.

Continuing on the theme of begetting Something New, let's say a word for tolerance. I suppose more books have been written about tolerance and there remains less of it in everyday life than any of the other virtues. You can trace it all down through the ages, if you can find it.

In every noble experiment ever devised and docketed by man, the spirit of intolerance has usually crept in sooner or later. If you can't get into a fuss with a man over his religion or his choice of cigarettes, you may at least charge him with being in cahoots with chain stores or the implement trust.

I reckon after all that there are probably three places in these United States where tolerance exists by force of circumstances. These are the jails, the asylums, and the Congress. In the first instance tolerance lasts from thirty days to a lifetime, in the second it persists until one is cured, and in the third it survives at least two years.

It might be argued that if we had no intolerance, there would never be anything New and that lovers of precedent and status quo might thereby eternally have their way. Still what a sad world it would be if all of us were reformers! There must be just enough resistance and just enough clash of opinion to fry out the fat. Those who see their way clearly up one side of a problem often overlook the 'tother side. The ardent plans of theorists may need a test in the fire of experience. Progress is best secured through nicely adjusted differences.

With human nature as it is designed and operating, I have no fear of our getting to a place where we all agree on everything. Privately, I should like to be counted out when we approach that point. Not even the New Deal will divorce us from divers opinions, even if they are reduced to silent mental rejection of Control Boards or secret disgust at maximums and minimums. Personally I still adhere to the ancient legend that the only place this side of Christmas where we can find teetotal agreement is in Valhalla. Hence my definition of tolerance is to be open to conviction by somebody you are sure is wrong.

By following that system we will get not only Something New but Something Permanent, which is far better. Ergo, I learned more in five minutes from a kid that licked the time out of me than the sissy who always said "yes."

IN marshaling the forces for a search for the Holy Grail of a better social order, no test is more desirable than Tenacity. We have witnessed of late many breaks in the ranks of those who joined up in the early days to the Salvation Army of Political Experiment.

Like the backsliders I used to observe with childish zest back in the

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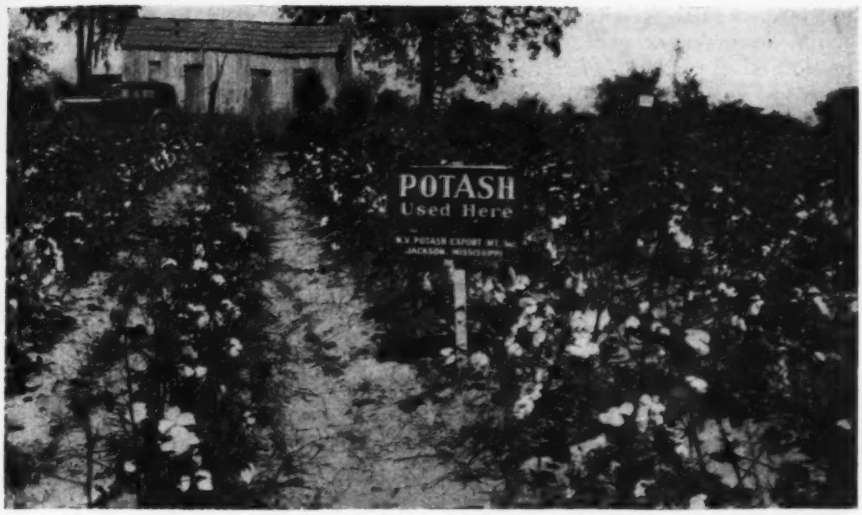

The cotton at the left in this picture of Jim Williams' field in Shelby county, Tennessee, received no fertilizer. The cotton at the right received 400 pounds of 9-0-15 applied as a side-dressing on June 7.

Potash Prevents Wilt *and* Rust

By L. A. Niven

Memphis, Tennessee

BECAUSE cotton wilt and rust are so wide-spread in much of the cotton-producing territory, particularly in the Mid-South, any steps that may be taken to control them are of the utmost importance to the cotton grower. These diseases have been with us for many years, but in recent years they have become much more prevalent. On thousands of acres of land, cotton production on a profitable basis has been made absolutely impossible by these two diseases if uncontrolled. This is true of much ground that is quite fertile and capable of producing high yields of cotton and very profitable yields if these two troubles were controlled.

In southeastern Missouri where cotton is grown and in the eastern half of Arkansas, practically all of the lands are susceptible to wilt or rust, or both, with the exception of the heavy black waxy land, which does not constitute more than 20 per cent of the cultivated land of that territory. Most of the land on which rust and wilt are prevalent is light sandy loam, dark sandy loam, and gray silt loam, with a limited amount of what is commonly known as crayfish land.

I recently interviewed several cot-

ton farmers in the territory mentioned above, in order to get at what the producers of cotton were doing to overcome these troubles.

In Dunklin county, Missouri, Mr. T. H. Masterson told me that in 1932 he had 13 tenants, whom he required to use 20 per cent kainit under their cotton, applying 125 to 150 pounds per acre. He did this because he knew that cotton when grown on this land was attacked by wilt and rust and that kainit would largely control both of them. At the end of the season each tenant, without exception, gladly paid the cost of the kainit, because it had increased the yield sufficiently to make it highly profitable to him. In 1933 Mr. Masterson used 50 tons.

The use of potash to control wilt and rust of cotton was started in southeastern Missouri by County Agent C. R. Talbert of Dunklin county, just a few years ago. Mr. Talbert, asked by Mr. P. A. Moxley what to do for his cotton that was dying, secured 200 pounds of kainit in 1926 and put on a demonstration on Mr. Moxley's farm. The potash increased the yield so much, in fact considerably more than doubled it, that the use of kainit has been on the increase in that whole section since that time.

In 1927 Mr. A. T. Douglas, a ginner in this community, bought and sold a carload of 20 per cent kainit. In 1928 he sold four cars and in 1930 he sold 800 tons. Even though the price of cotton has gone down since 1930, the use of kainit is still general, because it has proved profitable even with low-priced cotton. The use of kainit in this section has also proved to be reasonably profitable on land where rust and wilt are not present.

Claude Moxley, son of the Mr. Moxley who used the first potash in Dunklin county to control rust and wilt, told me that his fields will make only about 500 pounds of seed cotton per acre without potash and 1,500 pounds where he uses 200 pounds of 20 per cent kainit. In 1932, because of finances, he could buy only a small amount of potash and therefore applied it thinly and to only a portion of his acreage. Wilt and rust were so

(*Turn to page* 29)

Claude Moxley, Senath, Dunklin county, Missouri, used 150 pounds of 20% kainit on the cotton to the left (1932 crop). The cotton at the right received none. "This kainit," said Mr. Moxley, "made 1,500 pounds of seed cotton per acre. The yield without it was 500 pounds of cotton per acre. The kainit cost me only about $2.00."

Weeds Are a Nation's Menace

By O. C. Lee

Purdue University

Plants with underground rootstalks, such as the Canada thistle, should be sprayed while confined to small patches.

WEEDS are exacting an increasingly greater toll from farmers year by year. A recent estimate placed the annual damage caused by weeds in the United States at several millions of dollars. If anything is ever to be accomplished in coping successfully with the weed problem, it must be done by attacking the fundamental causes of the situation. The use of clean seed to prevent the introduction of new weeds and prevent multiplication of those already present must be practiced. The land must be kept in a state of fertility to make conditions favorable for crop growth. And, lastly, every possible method of weed killing should be practiced, namely, cultivation, clipping, and the following of crop rotations.

To secure a proper perspective of the situation let us take a glance backward. When the pioneer settlers broke the rich prairie sod or cleaned the wooded areas for cultivation, little if any difficulty was encountered with weeds since very few really troublesome weeds are native. For example, of the nineteen weeds listed as noxious in the Indiana seed law only three, bull nettle, bracted plantain, and white top, are natives. With the cultivation of the land, noxious weeds began to appear in increasing numbers, most of them being European plants that were introduced in impure seed, until today practically every farm in the State is infested with the weed plague.

The weed situation is not a local one, to be sure. In New York and Pennsylvania, for instance, there are literally hundreds of farms abandoned to Canada thistle. In the extensive Red River Valley of North Dakota and Minnesota a single weed, the perennial sow thistle, is the limiting factor between profit and loss on thousands of farms, and the presence of the pest has caused a complete change in agriculture. I have personally seen hundreds of acres of land in Washington, Idaho, and Oregon so

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A World Record

By Dr. Wallace Macfarlane

Berkeley, California

FOR the third time, the peat soils of the Stockton Delta region of California have produced a world-record yield of potatoes. Two of these record yields have been established by Weyl-Zuckerman & Company of Stockton.

For several years R. C. Zuckerman, manager of field operations of Weyl-Zuckerman & Company, has steadily increased the yield of potatoes on their Henning Tract by continually improving his method of culture and fertilization. This year on the McDonald Tract, owned jointly by the Holly Sugar Company and Weyl-Zuckerman & Company, after the use of the most improved methods at their command, there appeared to be a record yield of potatoes. At maturity a few acres were dug to ascertain yields, which proved to be in excess of 600 sacks per acre. These test diggings led Mr. Zuckerman to believe that on some of the selected acres of this tract he would be able to show a yield in excess of the previous world records.

To try out for a record, an acre was selected adjoining one of the test rows previously dug. This acre was surveyed by John Burke, civil engineer of Stockton, whose survey was checked by Charles Widdows, also a civil engineer of that city. The acre was dug under the supervision of the Agricultural Commissioner of San Joaquin county and weighed by a Deputy of the Sealer of Weights and Measures. It yielded 693.5 sacks. The actual weight reported by the Deputy Sealer was 69,352 pounds net, equal to 1,155.8 bushels, of which 97% were No. 1 potatoes.

After going over the 140-acre field, it was the opinion of those present at the digging that the whole field would

(*Turn to page* 24)

One Surveyed Acre in Field of 140 Acres on McDonald Island
Camp 12 Stockton, California. Dug Sept 19, 1933 Under Supervision
of San Joaquin County Agricultural Commissioner. All Acreage Fertilized
with ½ ton per Acre Gaviota Brand 0-15-12 Manufactured by the
Pacific Guano & Fertilizer Co.
YIELDS:
No 1 672.2
No 2 21.3
Total 693.½ Sacks 1155.86 Bu.

A 5-ton crop of spinach was grown by using 1,000 pounds of 9-3-10 fertilizer. On the check plot a half-ton crop was grown.

Grow a New Crop

SPINACH was a new crop for the vegetable growers of the Troutdale district, Multnomah county, Oregon. Contracts were offered them by a reliable concern to grow 130 acres of spinach at $22 per ton, delivered at a nearby station.

S. B. Hall, who has been county agent in Multnomah county for 16 years, did not sit idly by. He recognized in spinach a vegetable crop that would permit double cropping. It would, if successful, prepare the land for fall cauliflower, pay for the cost of commercial fertilizer for both crops, and leave a little spring cash in the pockets of vegetable growers. It would provide another income period for the cauliflower and cabbage growers of the Troutdale district.

Hall knew, as a result of his long experience and many fertilizer trials in Multnomah county, that plenty of commercial fertilizer would be essential to the success of the spinach crop. He met with growers and strongly recommended that each acre planted to spinach receive 1,000 pounds of a 9-3-10 fertilizer. Growers accepted the recommendation. Numerous check plots where no fertilizer was applied showed that fertilizer made the difference between success and failure with the crop. On the fertilized acreage spinach yields varied from 2 to 8 tons per acre. On the unfertilized plots the crop was not worth harvesting.

County Agent Hall did not stop with this recommendation and its adoption, which made the difference between profit and loss for spinach growers, but he established a series of fertilizer trials in which rates of application were varied as well as the composition of fertilizers applied, so that better and more accurate information might be available for another season.

Fifty growers viewed the results of the demonstrations on a field-inspection tour in May.—*Courtesy of Extension Service Review, U. S. D. A., Washington, D. C.*

The Inquiring Mind *and the* Seeing Eye

By Dr. A. S. Alexander

University of Wisconsin

WHEN on April 25, 1927, Dr. Thomas Forsyth Hunt of the College of Agriculture of the University of California unexpectedly passed away on board the Steamer "Wilhelmina" on his way home from Honolulu, the farmers of his adopted State and of America lost one of their sincerest and most sympathetic friends.

To him, the farm home was of supreme importance. With Theodore Roosevelt, he held that the children should be treated not as a by-product of the farm, but as the object for which the farm exists. He believed that any type of farming that does not lead to a successful home is a failure, and that farming is not a satisfactory business for an unmarried man or for people without prospective children. These original ideas he kept in mind, and it was his aim throughout his most eventful and purposeful life to do everything in his power to help found farm homes on a happy and prosperous basis and to educate the home builders for intelligent management and ideal citizenship.

The Product per Man

It was his firm conviction that the success of American agriculture does not depend primarily upon the yield per acre, but upon the product per man. Land, in his opinion, should be sold only to persons whose experience and temperament qualify them to succeed, and who have the proper motive for wishing to settle in the open country. Naturally, therefore, he taught that the primary purpose of better farming is not necessarily cheap food, however important that may be, but should be the production of a virile, educated citizenship. "Efficiency and morality," said he, "may not be synonymous terms, but they are mighty good chums."

Benefit of Counsel

Often he impressed upon the faculty of the Agricultural College and Experiment Station that while it is the function of the farmer to raise things, it is the function of the College, through its investigations, "to minimize and stabilize the risk." He considered it the first duty of the college to promote efficient production in order that food may be both abundant and cheap and in order that the largest possible proportion of the population may have leisure for other things; but such a policy as the only aim of the college, would surely lead to peonage, if not to slavery. As the farmer no longer relies wholly upon his hands, every possible effort should be made to help his head and his heart in his farm and home life and work. That, surely, is a creditable incentive for every agricultural teacher and worker, and it is being splendidly carried into effect in the club work of various kinds now function-

ing throughout the country and in which Dr. Hunt took such an active and inspirational interest wherever he happened to be serving in educational and managerial positions.

He wished his associates in the College and Experiment Station to regard their leadership as one not of control, but of counsel. Were that idea adopted, it would be natural for the farmer to bring not only their trials and troubles but also their hopes and aspirations to the body of

Thomas F. Hunt

men and women constituting the staff of the institution and an intimate part of their daily life.

It was ever the purpose of Dr. Hunt, in his teaching, lectures, and writings, to help place farming and the farm home on a higher plane. He believed that discontent flourishes largely in proportion to the inability of people to rear and educate families, and he did his best, by his work in behalf of farmers, to banish such discontent. He knew well that an unsuccessful farmer is not an asset to the State, and contended that the fertile land of the United States should be reserved for those who wish to rear and educate children, as well as to raise food and clothing materials. It would, therefore, be to the interests of the people of the cities, as well as those of the country, to provide conditions of ownership and development that would cause intelligent, capable Americans to seek homes in the country.

A successful system of agriculture in a country which has universal free public school education, in his opinion, could only exist permanently where there was a successful and attractive family life in the country. He advised, therefore, that it would be incumbent upon the faculty of the College of Agriculture to see that progress shall be permanent; that prosperity shall not be transitory; that in material, moral, and social ways the children of the land shall be left a heritage that will cause them to rise and call their counsellors blessed. The idea that people who live on the land should be upstanding, God-fearing, intelligent, and well-educated was not, to him, mere altruism. He held that those attributes were to be desired and fostered, for the reason that the grandchildren of the people who now occupy the land will occupy the cities and should have the proper background and training for the positions they will have to fill in the world's work.

Early Life in Illinois

Thomas Forsyth Hunt was born in Ridott, Illinois, on January 1, 1862, the son of Thomas Marshall Hunt and Mary A. Kirk Hunt. After receiving his preparatory education in the local schools, he became a student at the University of Illinois under the late Professor George E. Morrow, and in 1884 received the degree of Bachelor of Science. Afterward, he served as Assistant Illinois State Entomologist

until 1886; then he was an Assistant in Agriculture until 1888 and from that date to 1891 Assistant Agriculturist at the Illinois Agricultural Experiment Station.

On August 22, 1888, he married Juniata G. Campbell and two children, Theodore Morrow and Marion Juliet, blessed their union.

From 1891 to 1892, he was Professor of Agriculture at Pennsylvania State College; and from 1892 to 1903, was Professor of Agriculture at Ohio State University and Dean of the College of Agriculture from 1896 to 1903. From 1903 to 1907, he was Professor of Agronomy at Cornell University, and then Dean of the Pennsylvania School of Agriculture and Director of the Experiment Station from 1907 to 1912.

In 1912 he was appointed Professor of Agriculture, Dean of the College of Agriculture, and Director of the Agricultural Experiment Station of the University of California at Berkeley. He served as Director until 1919 and as Dean until June 30, 1923. At that time, desiring to devote more time to teaching and writing, he resigned as Dean, but continued work as Professor of Agriculture until the time of his death on April 25, 1927, when returning from Honolulu where he had attended the Pan-Pacific Conference on education, reclamation, rehabilitation, and recreation, as a representative of the University of California.

Credit to His Vision

Dr. Hunt's tenure of office at the California Agricultural College and Experiment Station marked a great expansion in teaching and research. The present system of agricultural extension functioning there, with its far-reaching ramifications, had its inception in the first few years of his administration and is a credit to his vision and enterprise. At the time of the World War he was chosen as a member of the U. S. Commission on Agricultural Conditions in the Allied Countries, and in 1920 he was a delegate of the United States to the International Institute of Agriculture in Rome.

He was a hard worker, a prolific writer of station reports, bulletins, and circulars, and a valued contributor to the farm press. He was, too, the author of some useful agricultural textbooks including: "Soils and Crops on the Farm" (with Morrow), "A History of Agriculture and Rural Economics," "The Cereals in America," "How to Choose a Farm," "The Forage and Fiber Crops in America," "The Young Farmer" (with Burkett), and "Soils and Crops" (with Burkett). His specialties were farm management and field crops. Regarding them, and everything pertaining to better living, he was a wise counsellor to his many students, who sorely missed his leadership and will ever cherish his memory.

Reorganized and Initiated

When Dr. Hunt returned to the Pennsylvania State College of Agriculture and Experiment Station in 1907, he at once reorganized the whole course of study. Up to that time there had been but one general course in agriculture. To this course he added courses in agricultural chemistry, agronomy, animal husbandry, dairy husbandry, botany, forestry, and horticulture. Later he organized a Department of Rural Education and a division of Landscape Gardening in the Department of Horticulture. Another of his innovations was a useful course on meat cutting in the Department of Animal Husbandry. He was instrumental in the inauguration of Agricultural Extension in Pennsylvania before the Smith-Lever Act was passed, and was instrumental in securing the railroad trains for agricultural instruction. The initiation of soil survey work of the farm lands was another of his achievements, and as head of the School of Agriculture he added three additional farms to the

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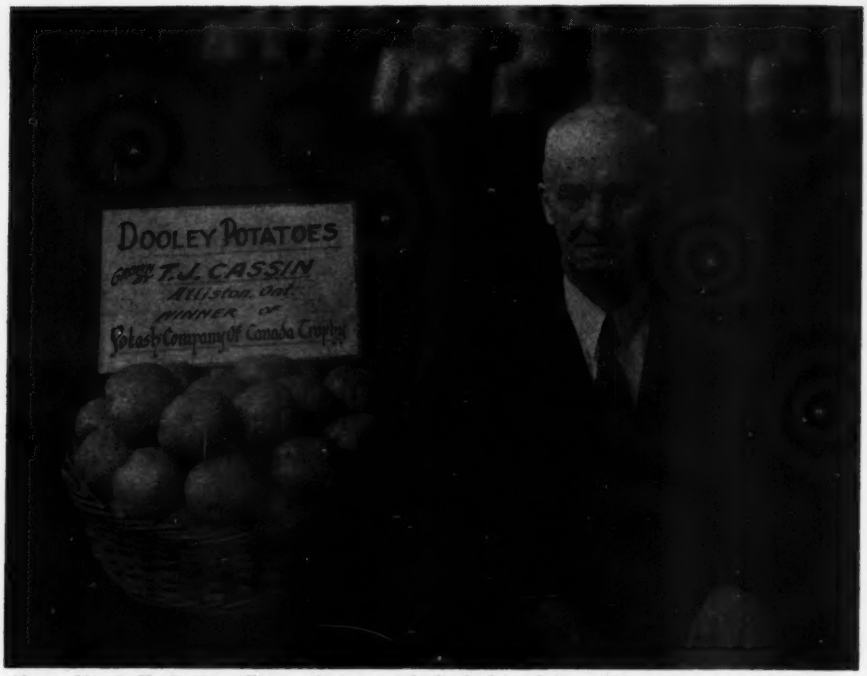
Pictorial

WHAT ABOUT THIS REPEAL?

Winter—An Eastern Road, near Lansdale, Pennsylvania

Winter—A Western Road, Mojave Desert, California



Above: Mr. J. T. Cassin, Alliston, Ontario, and the basket of beautiful potatoes on which he was awarded the Potash Company of Canada's Trophy for 1933.

Below: Another beautiful crop—a field of narcissi in Florida. A 4-6-10 fertilizer at the rate of 1,600 pounds per acre was used on these bulbs with splendid results.

The Editors Talk

The Need for Science in Agriculture

Who has not heard about two blades of grass growing where one grew before? For years it has been the historic justification of the application of scientific teachings to agriculture, and many are the leaders and teachers that have gone up and down the land proclaiming this truth. Now, question the critics of scientific work, two blades of grass and over-production having been accomplished, why continue so much scientific work? Why make a bad situation worse?

Superficially and viewed from a close and narrow range, there might appear to be some truth in this criticism. It is especially encouraging and reassuring, therefore, to note in the recent report of the Secretary of Agriculture and in the information for the press given out by the U. S. Department of Agriculture that the Secretary points out that science does not cause the surplus problem. After discussing the necessity of a long-time land program to replace emergency production control, the Secretary emphasizes the need of matching progress in the application of science to production with progress in the application of science to distribution.

Efforts to balance production with demand and to prevent useless farm expansion suggest to many farmers, the report says, that agriculture has a quarrel with science; for science increases the farmers' productivity and thus tends to increase the burden of the surplus. Secretary Wallace declares on the contrary that the quarrel is not with science but only with the incompleteness of its victories so far. Gains in technical efficiency, if not supported by scientific economic adjustments, cause trouble. However, the remedy, Secretary Wallace declares, is not to put a brake on science but to open new channels into which economic energy may profitably flow.

It would seem to us that there will always be a more and more urgent need for scientific work in agriculture. Agriculture is moving towards a definite goal, a growing efficiency. While temporary measures may be taken to help the farmer, in the long run a successful agriculture will depend on the degree to which agriculture in its individual units and from the national viewpoint, is efficiently managed. And greater efficiency in the production of crops, livestock, and agricultural products and their successful marketing means a great deal more research.

The production of large crop yields or great quantities of any product is no longer a problem. Enough is already known to produce any quantity of any crop or agricultural product required. But to produce the maximum quantity at the lowest cost of production and to obtain the best price in any given domestic or world market are quite different matters. Efficiency in production and distribution demands hard work; it demands more research, not less; it demands research on an increasingly broader basis, often to include more than a single State; it demands a correlation of research and experi-

mental work to properly estimate relative values, to avoid duplication and confusion, and to give strength and validity to the results of research so that it will act as a motive force to the practical man on a regional and national basis.

Science has led the way to an improved agriculture. The methods of past scientific research may be inadequate to present needs. But this simply means that with a changing world and changing problems, the scientific approach has to be broadened and strengthened. There was never a greater opportunity for the contributions of men scientifically minded than at present. But it means too that scientific men have to measure up to the opportunity.

Long Service to American Agriculture

Following a Presidential extension of his service for six months, Dr. William A. Taylor, Chief of the Bureau of Plant Industry, retired on December 30 after more than 42 years in the United States Department of Agriculture. He served under 10 Secretaries, beginning in the administration of J. M. Rusk. Secretary Wallace in a letter of appreciation to Dr. Taylor says that "few men in the field of science have gained—or deserved—greater world-wide respect."

Dr. Taylor has represented the Government in many important capacities and is the author of a large number of scientific bulletins and articles. His list of accomplishments covers a vast and varied field. BETTER CROPS WITH PLANT FOOD congratulates Dr. Taylor on his long and faithful service and wishes him every happiness on his retirement.

Effective as of January 1, Knowles A. Ryerson was appointed to succeed Dr. Taylor as Chief of the Bureau of Plant Industry. Born in Seattle, Washington, Mr. Ryerson studied at the University of California. Since then he has had a wide and varied experience in foreign and domestic fields, being on his appointment in charge of the Division of Foreign Plant Industry. We wish him and his associates every success in his new position.

A Record Potato Crop

Using standard and commercial methods of culture, and avoiding entirely any special plantings or larger quantities of seed and fertilizers, Weyl-Zuckerman and Company of Stockton, California, produced the 1933 world-record potato yield—1,155.86 bushels per acre. A picture on another page gives a good idea of what the field looked like after digging.

The acre was surveyed by competent authorities, and the potatoes were dug under the supervision of the Agricultural Commissioner of San Joaquin county and weighed by a Deputy of the Sealer of Weights and Measures. The yield per acre was therefore as accurate as could be obtained.

Certainly the growers are to be congratulated on this fine achievement. It demonstrates the possibility of lowering the cost of production by standardizing efficient commercial methods so that top yields are produced per unit of arable land.

REVIEWS

This section contains a short review of some of the most practical and important bulletins, and lists all recent publications of the United States Department of Agriculture and the State Experiment Stations relating to Fertilizers, Soils, Crops, and Economics. A file of this department of BETTER CROPS WITH PLANT FOOD would provide a complete index covering all publications from these sources on the particular subjects named.

Fertilizers

The recommendations for the common types of tobacco in Virginia, North Carolina, South Carolina, and Georgia for 1934 have been released by the committee of agronomists representing these States. For Bright Flue-cured tobacco on heavy and more productive soils, 3-10-6 (N-P-K) fertilizer at 800 to 1,000 pounds per acre is recommended. On light or less productive soils, 3-8-6 at 1,000 to 1,200 pounds per acre is suggested. When high topping is practiced and heavy yields are expected, the potash may be increased to 8 to 10 per cent and the fertilizer applied at 1,000 pounds per acre with good results. For Dark tobacco (Sun-cured and Shipping), 3-8-3 at 600 to 1,000 pounds per acre is suggested and on plant beds, 4-8-3 is recommended. Other analyses of similar ratios can be used. In addition to the recommendation of analyses, information on "sand drown," chlorine, sulphur, sources of plant foods, and the control of downy mildew or blue mold disease of tobacco is included.

"Pasture Investigations — Second Report," Agr. Exp. Sta., Storrs, Conn., Bul. 186, June, 1933, B. A. Brown and R. I. Munsell.

"Pasture Investigations—Third Report," Agr. Exp. Sta., Storrs, Conn., Bul. 187, July, 1933, B. A. Brown.

"Pasture Investigations — Fourth Report," Agr. Exp. Sta., Storrs, Conn., Bul. 189, Aug., 1933, B. A. Brown.

"Effect of Quickly Available Nitrogen on Returns From Strawberries on Norfolk Sandy Loam," Agr. Exp. Sta., Raleigh, N. C., Agron. Infor. Cir. 82, Sep., 1933, R. A. Lineberry, J. J. Skinner, H. B. Mann, and C. B. Williams.

"Commercial Fertilizers," Agr. Exp. Sta., Burlington, Vt., Bul. 361, Aug., 1933, L. S. Walker and E. F. Boyce.

"Effects of Time of Planting and of Fertilizer Mixtures on the Curly-top Resistant Sugar-beet Variety U. S. No. 1 in Idaho," U. S. D. A., Washington, D. C., Cir. 273, July, 1933, A. W. Skuderna, C. E. Cormany, and L. A. Hurst.

Soils

A method for grading the relative agricultural value of soils on a numerical basis has been proposed by R. E. Storie of California. He judges the soils under three general headings, character of soil profile, texture of the surface soil, and soil-modifying conditions. The latter includes such factors as drainage, alkali, acidity, fertility, erosion, typography, etc. A value from 1 to 100 per cent is given for each of the three general heads, depending upon the favorableness of the soil properties under consideration. The product of these percentages is the rating of the soil. In case a whole farm is to be rated, the rating of each soil on the farm is multiplied by the acreage of the soil. The resulting values for each soil are added and this is divided by the total acreage. The result gives the rating for the farm. Details on this interesting method of grading soils and farms are given in University of California Agricultural Experiment Station Bulletin 556, 1933 "An Index for Rating the Agricultural Value of Soils," by R. Earl Storie.

"Potassium in Calcareous Soils—Part I—Solubility and Availability; Part II—Some Properties of Replaceable Potassium," Agr. Exp. Sta., Tucson, Ariz., Tech. Bul. 50, Aug. 1, 1933, W. T. McGeorge.

"The Soils and Crop Production in Genesee County, New York," Agr. Exp. Sta., Ithaca, N. Y., Bul. 567, June, 1933, A. F. Gustafson, D. B. Johnstone-Wallace, F. O. Underwood, and J. Oskamp.

"Soil and Field-crop Management for St. Lawrence County, New York," Agr. Exp. Sta., Ithaca, N. Y., Bul. 570, June, 1933, A. F. Gustafson, D. B. Johnstone-Wallace, and F. B. Howe.

"Correcting the Unproductiveness of Acid and Alkaline Muck Soils for the Growing of Vegetable Crops," Agr. Exp. Sta., Ithaca, N. Y., Bul. 572, June, 1933, G. M. Tait and J. E. Knott.

"Soils in Relation to Fruit Growing in New York—Part III—Some Physical and Chemical Properties of the Soils of the Hilton and Morton Areas, Monroe County, and Their Relation to Orchard Performance," Agr. Exp. Sta., Ithaca, N. Y., Bul. 575, July, 1933, Joseph Oskamp and L. P. Batjer.

"Character and Behavior of Organic Soil Colloids," U. S. D. A., Washington, D. C., Tech. Bul. 377, July, 1933, M. S. Anderson and Horace G. Byers.

"Soil Survey of The Nogales Area, Arizona," U. S. D. A., Washington, D. C., No. 6, Series 1930, T. W. Glassey.

"Soil Survey of Crawford County, Iowa," U. S. D. A., Washington, D. C., No. 30, Series 1928, T. H. Benton and M. H. Layton.

"Soil Survey of Erie County, New York," U. S. D. A., Washington, D. C., No. 14, Series 1929, Arthur E. Taylor, F. B. Howe, C. S. Pearson, and W. J. Moran.

"Soil Survey of Midland County, Texas," U. S. D. A., Washington, D. C., No. 31, Series 1928, E. H. Templin and J. A. Kerr.

Crops

Two important additions to forage literature become available by the circulation of a new Illinois Bulletin 394 "Sweet Clover in Illinois," by O. H. Sears, J. J. Pieper, and W. L. Burlison, and Ohio's Bulletin 137 "Alfalfa in Ohio Farming," by R. D. Lewis, J. A. Slipher, and C. J. Willard. Both of these publications treat fully the results of important experimental work on the profitable culture of these two crops in the respective States. There is much information in each applicable to other sections of the country.

"Ornamental Trees," Agr. Exp. Sta., Gainesville, Fla., Bul. 261, June, 1933, Harold Mowry.

"Relation of the Root System of Pecan Trees to Nursery and Orchard Practices," Agr. Exp. Sta., Experiment, Ga., Bul. 176, June, 1933, J. G. Woodroof.

"Some Effects of Severity of Pruning on Growth and Production in the Concord Grape," Agr. Exp. Sta., Urbana, Ill., Bul. 393, July, 1933, A. S. Colby and L. R. Tucker.

"Corn as a Silage Crop," Agr. Exp. Sta., Urbana, Ill., Cir. 409, June, 1933, W. B. Nevens.

"Forty-fifth Annual Report of the Agricultural Experiment Station of the University of Kentucky for the Year 1932," Agr. Exp. Sta., Lexington, Ky., Thomas P. Cooper.

"Irish Potato Investigations," Agr. Exp. Sta., Baton Rouge, La., La. Bul. 239, Sep., 1933, Julian C. Miller and W. D. Kimbrough.

"The Small Vegetable Garden," Univ of Md., College Park, Md., Ext. Bul. 70, Sep., 1933, W. R. Ballard.

"Experimental Projects—Thirty-ninth Annual Report, July 1, 1931, to June 30, 1932," Agr. Exp. Sta., Bozeman, Mont., F. B. Linfield.

"Studies of Feed Value of Early Hay," Agr. Exp. Sta., Durham, N. H., Sta. Cir. 41, May, 1933, Ford S. Prince, Paul T. Blood, and G. P. Percival.

"Amount of Mulch Material Required by Apple Trees," Agr. Exp. Sta., New Brunswick, N. J., Cir. 286, June, 1933, M. A. Blake.

"Elberta and its Selfed and Chance Seedlings Lack Hardiness," Agr. Exp. Sta., New Brunswick, N. J., Cir. 287, June, 1933, M. A. Blake.

"The Care of Evergreens," Agr. Exp. Sta., New Brunswick, N. J., Cir. 288, June, 1933, C. H. Connors.

"The Relative Vigor and Productivity of Potato Plants from Basal and Apical Sets," Agr. Exp. Sta., Geneva, N. Y., Bul. 633, Aug., 1933, F. C. Stewart.

"Corn Breeding," Agr. Exp. Sta., Raleigh, N. C., Agron. Infor. Cir. 81, Sep., 1933, G. K. Middleton and P. H. Kime.

"Report of Conference on Strawberry Investigations, Held at Chadbourn, N. C., and Willard, N. C., May 2 and 3, 1933," Agr. Exp. Sta., Raleigh, N. C., Agron. Infor. Cir. 83, Sep., 1933.

"Dependable Fruits—Varieties for Commercial and Home Use," Agr. Exp. Sta., Wooster, Ohio, Bul. 528, Sep., 1933, C. W. Ellenwood and J. S. Shoemaker.

"The Bimonthly Bulletin," Agr. Exp. Sta., Wooster, Ohio, Vol. XVIII, No. 165, Nov.-Dec., 1933.

"The Feeding Value of Artificially Dried Young Grass," Agr. Exp. Sta., Burlington, Vt., Bul. 350, Jan., 1933, J. A. Newlander.

"Rootstock Effects with Cherries," Agr. Exp. Sta., Burlington, Vt., Bul. 352, Mar., 1933, M. B. Cummings, E. W. Jenkins, and R. G. Dunning.

"A Study of Natural Reproduction in Vermont Forests—II. The Effect of Thinning on White Pine Reproduction," Agr. Exp. Sta., Burlington, Vt., Bul. 354, June, 1933, George P. Burns.

"The Carbohydrate Contents of the Maple Tree," Agr. Exp. Sta., Burlington, Vt., Bul. 358, June, 1933, C. H. Jones and Jennie L. Bradlee.

"The Feeding Value of Artificially Dried Young Grass—II," Agr. Exp. Sta., Burlington, Vt., Bul. 359, June, 1933, O. M. Camburn.

"Forty-sixth Annual Report, 1932-1933," Agr. Exp. Sta., Burlington, Vt., Bul. 360, July, 1933, J. L. Hills.

"Chemical Composition of Pasture Grasses in Vermont," Agr. Exp. Sta., Burlington, Vt., Bul. 362, Sep., 1933, J. A. Newlander, C. H. Jones, and H. B. Ellenberger.

"Agricultural Seed," Agr. Exp. Sta., Burlington, Vt., Bul. 365, Oct., 1933, Anna S. Lutman.

"Forty-fifth Annual Report, 1932," Agr. Exp. Sta., Knoxville, Tenn., H. A. Morgan.

"The Storage and Seasoning of Pecan Bud Wood," Agr. Exp. Sta., College Station, Tex., Bul. 478, Aug., 1933, Fred R. Brison.

"Important Steps in Growing Grain Sorghums," Agr. Exp. Sta., College Station, Tex., Cir. L-8, E. A. Miller.

"The Katahdin and Chippewa Potatoes," U. S. D. A., Washington, D. C., Cir. 276, July, 1933, C. F. Clark, William Stuart, and F. J. Stevenson.

"Report of Extension Work in Agriculture and Home Economics in the United States, 1932," U. S. D. A., Washington, D. C., June, 1933, C. W. Warburton and C. B. Smith.

"Huron Timothy," U. S. D. A., Washington, D. C., Leaflet 99, Aug., 1933, Morgan W. Evans.

"Pima Egyptian Cotton in Irrigated Rotations at the Yuma Field Station, Bard, Calif.," U. S. D. A., Washington, D. C., Tech. Bul. 369, Aug., 1933, Stephen H. Hastings and Edward G. Noble.

Economics

"A sufficient and suitable supply of roughage to meet the demands of the dairy herd on each farm is fundamental to the dairy industry of the State. The raising of this roughage is an integral part of the dairy enterprise. It therefore involves the whole farm organization and makes necessary the study of the problems as to what forage crops to raise, and the methods used for their economic production and handling."

The above is the introductory paragraph of New Hampshire's new Station Bulletin 273, "Roughage Production in New Hampshire," by M. F. Abell. The material presented is divided under the following three major headings:

(1) What roughage should be grown?

(2) Silage production — management and costs.

(3) Hay production—management and costs.

These headings alone provide an index to the information of wide range and interest supplied in the bulletin.

"Farmers' Cooperative Associations in Florida, II. Organization and Management," Agr. Exp. Sta., Gainesville, Fla., Bul. 263, June, 1933, Marvin A. Brooker and H. G. Hamilton.

"Farm Prices of Cotton Related to Its Grade and Staple Length in Selected Local Markets in Mississippi, Seasons 1928-29, 1929-30, and 1930-31," Agr. Exp. Sta., State College, Miss., Tech. Bul. 21, Mar., 1933, L. D. Howell, Lewis E. Long, John S. Burgess, Jr., Milliard L. Garner, and R. C. Soxman.

"Facts on Fruit and Vegetable Farming in New Jersey, 1926-1931," Agr. Exp. Sta., New Brunswick, N. J., Bul. 555, June, 1933, Allen G. Waller and John W. Carncross.

"Some Rural Social Agencies in Ohio—A Study of Trends, 1921-1931," Agr. Exp. Sta., Wooster, Ohio, Bul. 529, Sep., 1933, C. E. Lively.

"Ohio Agricultural Statistics, 1932," Agr. Exp. Sta., Wooster, Ohio, Bul. 530, Sep., 1933, A. R. Tuttle, R. E. Straszheim, and P. P. Wallrabenstein.

"Land Utilization as a Basis of Rural Economic Organization," Agr. Exp. Sta., Burlington, Vt., Bul. 357, June, 1933, C. F. Clayton and L. J. Peet.

"A Study of the Organization and Management of Early Potato Farms in Eastern Virginia," Agr. Exp. Sta., Blacksburg, Va., Bul. 289, Apr., 1933, C. W. Crickman, Henry T. Wingate, and J. J. Vernon.

"Wheat Futures—Volume of Trading, Open Commitments and Prices from January 2, 1930 to December 31, 1932," U. S. D. A., Washington, D. C., Stat. Bul. 41, Sep., 1933.

"Car-lot Shipments of Fruits and Vegetables from Stations in the United States for the Calendar Years 1930 and 1931," U. S. D. A., Washington, D. C., Stat. Bul. 42, Sep., 1933.

"Proposed Revised Federal Grain Standards," U. S. D. A., Washington, D. C., Misc. Publ. 173, Sep. 1933.

A World Record

(*From page* 10)

average well over 500 sacks of No. 1 potatoes per acre. These phenomenal yields were obtained under standard commercial operations.

The particular type of California Delta soil which Mr. Zuckerman is farming responds remarkably well to phosphoric acid and potash. Hence the steadily increased yields that have been obtained, not only on Mr. Zuckerman's properties but on other properties in this section, can be attributed quite largely to the continued use and cumulative effect of phosphoric acid and potash fertilizers. Three world-record yields of potatoes have been established with these types of fertilizers and naturally, as might be expected with world-record yields, with splendid cultural practice.

The seed bed on McDonald Island was prepared by one of the pulverizing machines designed and built by R. C. Zuckerman. The planting was the standard practice for this locality, 10 inches by 30 inches. Ten sacks of seed potatoes were planted per acre. This seed was grown on the Zuckerman Brothers' ranch at Klamath Falls, Oregon, and was of the "Eastern Pride" type. The entire acreage was fertilized with 1,000 pounds per acre of Gaviota 0-15-12 fertilizer (that is to say 15% phosphoric acid and 12% potash) produced by the Pacific Guano and Fertilizer Company of Berkeley, California. The seed was planted April 1, 1933, and the crop was harvested September 18, 1933, making 170 days growing time.

Mr. Zuckerman has not only been progressive in his cultural methods, but has patented a potato planter and fertilizer drill which plants and fertilizes three rows at one operation. The fertilizer drill was set so as to apply the fertilizer two inches below the seed over a width of 10 inches, thoroughly mixing the fertilizer with the soil to a depth of 8 to 10 inches. This is Mr. Zuckerman's usual method of applying fertilizer. One of these fertilizing and planting machines plants and fertilizes 12 to 15 acres per day.

The outstanding feature of this world-record yield is that it was produced with the standard method of culture, planting, and fertilizing used by Weyl-Zuckerman & Company. Most other records have been established with special planting, using larger quantities of both seed and fertilizer per acre, and at harvesting the fields were combed to obtain every potato in the field. In this instance, the field was planted, fertilized, irrigated, and harvested under their regular commercial system. The field was dug only once with standard equipment, which makes this record yield all the more remarkable.

The potato digger used on the Weyl-Zuckerman ranch was invented by Mr. Zuckerman. It digs three rows at a time. Rollers beneath the conveyors leave clean potatoes on well-packed soil.

Weeds Are a Nation's Menace

(*From page 9*)

The main objective in cultivation is weed control.

badly infested with the European bindweed as to prohibit the profitable growing of crops. In fact so serious is the pest that banks refuse to take land infested with it as collateral.

The startling figures and facts here presented are not intended to be sensational or to scare the farmers. They are recorded with the object of awakening farmers to a true realization of the situation that weeds may no longer be looked upon with the present air of indifference arising from the feeling that they are a necessary evil, an attitude created by the familiarity that has bred contempt. Instead the weeds in the field should be considered as robbers that should not be tolerated, and that seriously reduce crop yields.

Survey the Problem

Let us take a trip over the farm and make a study of the general weed problem with the idea in mind of putting into practice the most practical and best known methods of weed control and eradication. It is true that ridding a farm of weeds is by no means a short-time job. Constant fighting will eventually win the fray.

Near the home in fence rows, along roadways, and in waste places, we often find weed nurseries where millions of weed seeds are produced each year. Keep in mind that weeds are not stationary and that seeds produced in out of the way places will move into the fields and increase the weed toll. A simple remedy for their control is at hand and requires only a few hours' work for which the farmers will be well paid. Hitch the horses to the mowing machine and plan to cut all such weed patches. Experience has shown that two clippings each year are essential. The first cutting should be made in June to prevent seed formation on the earlier plants. Again in August, the mower should be utilized for weed clipping purposes. Many farmers have demonstrated that mowing in early June and again in August will prevent most weeds from going to seed and allow the grass to secure the upper hand.

Fertilize Pastures

Then there is the weedy pasture that has been seriously reduced in carrying capacity as weeds have replaced the bluegrass. Experiments, demonstrations, and experience all point to this as primarily a soil improvement problem. The chances are that in addition to the leaching factor, you have robbed the soil bank by removing from the pasture in the form of milk and other animal products certain mineral elements that are necessary for the development of the grass. In other words, the soil has gradually become less fertile, permitting the weeds to enter since weeds are nature's effort to cover up sterile places. The problem usually can be solved by the addition of a few hundred pounds of a good fertilizer. Clipping of weeds in pastures is also essential. Cutting them will not only prevent seed formation, but will retard their growth.

Let us now turn to the attention of the timothy meadow with its mass of weeds. Here again two suggestions are in order. In the first place, if possible to grow clover on the field, always include this legume in the timothy seeding since the clover, by adding nitrogen to the soil, encourages the stand of timothy which in turn has a distinct tendency to exclude the weeds. The second suggestion is to cut the timothy early, thereby setting the weeds back to an almost unbelievable extent while at the same time securing more palatable and nutritive feed.

Use Pure Seed

Perhaps you are having difficulty with weeds in the clover field. Most weeds of the clover field owe their origin to impure seed. The necessity of using pure, weed-free seed cannot be overemphasized. It is through this channel that new and dangerous weeds are introduced from other sections of the country. To prove this point we need only to recall the European bindweed which has recently been introduced into the Midwest through alfalfa and clover seed from the Pacific Northwest. Weedy clover fields should be clipped in May when the weeds are taller than the clover. This clipping should be made high enough to save the clover and yet cut weeds.

Two suggestions for weed control are in order for the corn field. First, spend more time in seed-bed preparation when millions of weeds can be destroyed, with comparative ease. Keep in mind that weeds are most easily killed when they are small. Second, use gopher blades or knives in place of shovels when cultivating. A set of knives can be purchased for a few dollars and are efficient weed destroyers when kept sharp. Many farmers are learning the truth of the principle that after the preparation of the seed bed the main object of cultivation is the destruction of weeds.

Careful preparation of the seed bed will also apply to controlling weeds in oat and wheat fields. Oftentimes disking of the ground is substituted for plowing, with an increased weed growth as the result. Many of these weeds, such as mustard, peppergrass, and milkweeds, can be destroyed by plowing. Fields that are badly infested with winter annuals should by all means be plowed before sown to oats. We can profit by the experience of the North Dakota and Minnesota farmers that have found spring plowing a prevention for the growth of many oat-field pests.

During our weed tour around the farm, we must not neglect patches of Canada thistles, wild morning glory, quack-grass, and other creeping root perennials which are oftentimes found on all parts of the farm. The time to eradicate them is when they are still confined to small patches, and the method is spraying. Chlorates are the most effective spray materials to use on such weeds that resist other means of control. A few pounds of chlorate applied will prevent further spread.

Occasional weeds with deep, fleshy tap roots, such as dock, mullen, and burdock, are best disposed of by cutting under the crown with a spade or spud. The spud is an implement resembling a chisel with a long handle.

Constant Vigilance

Now that we have made the rounds and discussed the general farm weed problems, the next step is to put it into practice. Some will say that cleaning up the weeds on a farm is an endless job; others have and will continue to keep their farms as free from weeds as possible. The up-to-date farmer realizes that in order to get the most out of his investments he cannot allow weeds to take their annual toll and increase to the point where crop production will be unprofitable. Constant fighting, using as ammunition, clean seed, cultivation, clipping, and fertile fields to keep the upper hand, is the solution to the enormous weed problem.

The Inquiring Mind

(*From page* 14)

College Farm, by purchase and leasing. During his administration, the present Horticultural Building was erected in 1908, and he directed the setting out of the experimental orchard. His activity in agricultural extension work and the inauguration of a Farmers' Week brought him into close contact with the farmers of the State and gained him their good will.

Professor F. D. Gardner, Agronomist of the Pennsylvania Agricultural Experiment Station, considered Dr. Hunt a rare combination of business man and scientist whose entire life was devoted to agricultural education and research, with a view to the betterment of American agriculture and the American farm. He tells us, too, that Dr. Hunt early won a prominent place in the American Association of Agricultural Colleges and Experiment Stations. He was active on many important committees and was for several years a member of the standing committee on instruction in agriculture.

Suggested Graduate School

It was he who first suggested that the association should organize and establish a Graduate School. The first Graduate Session, which resulted, was opened at the Ohio State University in 1902, and others then functioned in alternate years until 1916. They were held at the Agricultural Colleges or Universities in the States of Ohio, Illinois, Iowa, Michigan, Missouri, and Massachusetts. At the first session in Ohio, Dr. Hunt acted as registrar. "Wherever he served," writes Professor Gardner, "Dr. Hunt was held in high esteem and looked upon as a man of fine personality and high ideals. Relatively few, during his period of service, were his equal, and he had no superior in the field of scientific agriculture in his time."

When Dr. Hunt moved to California in 1912, he found the new environment invigorating and the opportunities afforded by his position as Dean and Director of the College of Agriculture and Experiment Station inspiring. Always a prodigious worker, he tackled his new tasks with enthusiasm and admirable vigor. One of his first acts was to gather round him some of the workers with whom he had previous acquaintance, and he soon built up a great faculty of eminent scientists.

Started Extension Work

In 1913 he brought to California Professor B. H. Crocheron, who organized the Department of Agricultural Extension which grew to be one of the greatest and most efficient in the country. Another of his appointees, Professor J. W. Gregg, is now Professor of Landscape Architecture in the University of California and is widely known as a foremost landscape designer. His notable work has included the designing of the campuses at the Universities of Berkeley and Los Angeles. Professor C. F. Shaw, now head of the Soil Technology Division of the University, was also appointed by Dr. Hunt and gained his esteem and confidence by his faithful and efficient work. In all other departments of the University there are eminent and progressive chiefs who with their associates carry into effect the purposes of the College of Agriculture expressed in the inscription on Hilgard Hall which reads, "To Rescue for Human Society the Native Values of Rural Life."

Dr. Hunt's associations with the faculty were, on the whole, pleasant, but there were honest differences of opinion between him and some members relative to the conduct of the

College of Agriculture. Professor Edwin C. Voorhies of the Department of Agricultural Economics was intimately associated with Dr. Hunt, and tells us that the differences of opinion arose relative to the question whether the chief attention should be paid to fundamental research or to that and its applied phases. Dr. Hunt believed strongly in scientific research, but held also that its findings should be carried to the farmers, and so he was a strong champion of agricultural extension. His entire career on the Pacific Slope was by no means smooth; but he had the courage of his convictions, bravely contended for what he deemed right, and succeeded notably in many of his efforts.

A Fine Executive

Professor Voorhies considered Dr. Hunt an excellent administrator who had the happy faculty of knowing how to delegate duties to other people and then hold them responsible without interfering in their work. He was a leading agricultural economist as well as a trained agronomist. Professor Crocheron once said of him, "Dr. Hunt can see a greater distance through a stone wall than any man I have ever known." His clearness of vision was well exemplified by the fact that the predictions he made, in several lectures to the faculty regarding the events which would follow the world war, proved correct. While he could not be called a "good mixer," and had not joined many associations and clubs, he enjoyed the respect of both the agricultural and non-agricultural population of California. His public addresses always attracted large audiences of interested hearers.

Withal, he was a most charitable man, but secretive in his acts of kindness. He loved to help his students and made many sacrifices in that connection. We are told that he joined a social fraternity for the simple reason that he liked the lads composing it. He took a keen interest in Alpha Zeta, the agricultural honorary fraternity, and made it a point to entertain its members once or twice a year at his home. He was also a member of Sigma Xi fraternity. He was an ideal "home man," seldom went to gatherings other than those of the University, but often welcomed a few of his close personal friends at his home. Profoundly religious, in an unassertive way, he attended the First Congregational Church in Berkeley, and had a kindly Christian influence upon his students.

In a practical way, Dr. Hunt interested himself in every phase of crop, fruit, and stock raising in California. At one time he made the problem of alkali prevalence in the soil a matter of careful study. He was an early advocate of sorghum growing. He advised that one of the simplest ways of making possible an increased meat production in California would be the raising of sorghums, either for grain or silage. He said that if food products were to be increased and the price of foods lowered, there must be a starting point somewhere, and that starting point would be where the plow enters the ground. There were many thousands of acres of land producing, under a scanty pasture, perhaps less than 50 lbs. of beef per acre, which might, if planted to grain sorghums, produce from 400 to 1,000 lbs. of pork, or their equivalent in milk and eggs

A Wise Prophet

During the period of the World War, Dr. Hunt offered much good and practical advice regarding crop growing and food production; but he was dubious as to the way in which his suggestions would be received. His comments on this subject were, indeed, prophetic. He concluded his report to the State Council of Defense with the following notable paragraph: "And now, finally, the pity of it all is that very little attention will be paid to most of these recommendations. There will be in the hands of the American public,

during the next two or three years, more money and instruments of credit per capita than there ever were in any nation of the world, and *there is every reason to believe that this country is to witness the most prosperous times and the most riotous living that it has ever known.* In the meantime it is our allies who will suffer. 'For what shall it profit a man if he gain the whole world and lose his own soul.'"

His prediction relative to inordinate prosperity and the orgy of riotous living proved only too true; but happily he did not live to see the inevitable aftermath of world-wide depression. We wish he might know, however, that the wise counsel he gave to farmers during his life of devotion to their cause did not fall on deaf ears. Today, they revere his memory, not only in California, but in the other States in which he labored; and if one should seek his monument and epitaph, it could be best found in the farm homes and fields of the country.

Potash Prevents Wilt and Rust

(*From page* 8)

bad that his yields were unprofitable where potash was not used. In 1933 he was determined to use kainit on any ground planted to cotton, because he simply could not afford to have his yield of cotton cut to one-third due to a lack of this small amount of fertilizer. Although he is growing the D & P L 4 cotton, which is supposed to be somewhat wilt-resistant, his cotton wilted badly where he didn't use potash. Where he did use it the disease was nearly 100 per cent controlled.

In one of his fields in September 1933, I saw one row which did not receive any potash. The remainder of the rows in the field received it at the rate of 300 pounds of the 20 per cent kainit per acre. I stepped off 30 feet of row space on the unfertilized and 30 feet on the row immediately adjoining which received the fertilizer. An actual boll count was made, and on the fertilized stalks there were 390 bolls as against 172 where no kainit was used. The bolls on the fertilized row were on an average at least a third larger. There was not a good stand on the unfertilized row, because many of the young plants died of wilt before reaching any appreciable size. The result was not more than a third as much cotton from the unfertilized as from the fertilized cotton.

Several farmers in Dunklin county told me that potash fertilizer not only increased the quantity of cotton, but the quality as well. One said potash-fertilized cotton on wilt-infested land consistently produced a staple from 1/16 to ⅛ inch longer than where none was used, which meant an increase in price of at least ½ cent more per pound when sold. Another said that the knotty and small bolls brought about by wilt and rust considerably increased the cost of picking. To put it another way he said the cost of the kainit was paid for by the reduction in picking cost, as the large, healthy bolls were so much more easily picked than the diseased ones.

In Greene county, Arkansas, Mr. John Frye was about to abandon one of his fields five years ago, as far as cotton production was concerned, because of the prevalence of wilt and rust. His county agent put on a test on this farm, having Mr. Frye apply on two acres 400 pounds per acre of

a 4-8-6 fertilizer, plus 100 pounds muriate of potash. The result was a yield of a bale per acre. Adjoining land without any of the fertilizer produced approximately one-eighth bale per acre. Mr. Frye said that had it not been for the potash fertilizer he would have been through with cotton on that farm, whereas he now averages close to a bale per acre by using fertilizer, and when the seasons are normal.

Mr. Ben Lincoln, county agent of Greene county, Arkansas, said that on land in his county that was susceptible to rust and wilt an application of 150 to 175 pounds of 20 per cent kainit had, on an average, doubled the yield. He said that on much of the land where rust and wilt are not present, the use of potash has been found profitable.

Aids Wilt-resistant Varieties

At the Marianna Experiment Station, Marianna, Arkansas, where work with cotton is featured, the tests clearly show that by using those varieties of cotton that are somewhat wilt-resistant and by applying liberal amounts of potash, practically 100 per cent control of wilt and rust is secured. Rowden 40 is the variety of cotton that seems to be best adapted to the lands of this experiment station, and by planting this variety and fertilizing with 100 pounds of muriate of potash per acre, Director Whitaker states that practically 100 per cent wilt control has been secured, even where the wilt was quite bad. I found several tests which clearly indicated that an application of 100 pounds of muriate of potash on this station farm, along with varieties that are fairly resistant to wilt, would produce a yield consistently from three to four times larger than where a susceptible variety was used and no potash applied.

No Longer Any Doubt

There is no longer any doubt about the tremendous value of potash in controlling both wilt and rust in cotton, and wherever these diseases are prevalent there is no sense in trying to grow cotton without the liberal application of potash, because for every dollar intelligently invested it will return several dollars.

In many other sections of the South wilt and rust are just as prevalent as in southeastern Missouri and Arkansas. These experiences could be multiplied hundreds of times, because the information that potash will control these diseases is rapidly becoming general knowledge on the part of cotton growers, and they are using it in constantly increasing quantities.

Potash made the difference in this cotton at the Marianna, Arkansas, Experiment Station. Left: 6-8-0 applied at the rate of 600 pounds per acre under cotton before planting. Right: 6-8-6 at the same rate of application.

Wreaths & Resolves

(*From page 6*)

old M. E. meeting house, these fellows got the "pow-wow-er" and whooped it up for a housecleaning as long as the soft soap lasted. When the Boss switched from Lux to Gold Dust, they began sneezing and laid down their mops.

Tenacity is easier for some folks to acquire if they are paid for it. It all depends in what form they are reimbursed. The Chamber of Commerce style of reward is not suited to those seeking Something New. It's the tenacity of John the Baptist rather than that of a Shylock which finds its true return in social statecraft.

IS there after all a better time to dedicate ourselves to a constant search for Something New than at the anniversary of the time when Wisdom followed the Star to locate the Truth at last in a barren stable?

Despite the material setback of recent Yuletides, we have gained much ground in comparison to the days when the other Wise Men sought the first New Deal. For in those benighted times the lives of a thousand men counted for less than the meal ticket of one today. In those 1,933 anniversaries of the Natal Day which the world has known, progress has been recorded in every art, science, and social standard worth the name. As Christmas came to mean more to the world, the moral tone of the times improved. As the succeeding Christmas lights expanded, their increasing brilliance drove the hungry wolf packs farther from the door.

Yet through the ages it has been a contest between the Believers on the one hand and the King Herods and Pontius Pilates on the other. Old Herod personifies those who have sought to kill the Idea before it was born. His kind have bobbed up on every occasion attempting to browbeat and defame the reformer or the liberal.

But although they delayed the coming of the Magna Carta, the Renaissance, world discovery, the American Revolution, labor reform, the emancipation of the slaves and the freedom of speech and of the press, the victory finally went to the invincible power of leadership inspired by mass demand.

The Pilate obstructionists are those who wash their hands of responsibility one way or the other, but who invariably reserve the right to criticize and jibe at the failure which they anticipate for the New Idea.

To the most of us, of course, abstract philosophy does not carry great punch. The hungry cannot be fed on hopes or platforms and the jobless cannot be provided with an honest living on theory. So no doubt the most intense interest centers still on the usual meaning of Christmas. This is what joy, comforts, or benefits are derived from the occasion.

A GOVERNMENT that softens the hearts of its citizens with gifts naturally fits them to listen more attentively to a general social adjustment program. The only danger in it is that we develop "easy-come" do-nothings. Yet the danger from that in this country is not so great as in some older lands. Christmas was brighter anyhow to many citizens since Santa Claus disguised as Uncle Sam has taken his pack of donations, credits, and public works out to the victims of the machine-and-money madness.

Therefore it becomes a question of what effect these generous presents will have upon the body politic. Judging by what we know of the recovery program in agriculture, the payment of taxes, interest, and honest debts have been foremost. This discloses the underlying worth of the average in-

dividual, and bears out what we pin our faith upon.

If the individual accepts the better times fully aware of the causes that made bad times and desirous of voting to correct them, this Christmas party will not have been in vain. If this generosity inspired by a desire to stir men to action fails to arouse them, can we retain leaders hopeful and resolute enough to see it through?

WE are trying, it seems, to approach an ideal state of affairs by means of practical ends. We are trying to make the Government more than a tax-collection agency, although for the time being we depend on taxes to help adjust emergencies. We are trying to make statecraft more than warcraft and diplomacy, although to reach that goal we must have generals keen enough to swap horses or sock the enemy.

So we trimmed the Christmas tree with gifts bought under the sign of the Blue Eagle, and feel that there is a spirit of sacrifice for the common welfare stirring as the New Year dawns.

Those who ponder too deeply on a few errors of statecraft or let themselves be aroused to frenzy over the mouthings of some disgruntled politician are wasting time. In the manufacture of anything New there are some discarded patterns, some thumping of fingers and scraping of flesh, a litter of shavings and saw dust. There are long hours of drafting and designing, periods of standing still to think things out, intervals of hesitation and testing, and finally the finished article is ready to function.

Our worst enemies are those who join Herod and Pilate in urging haste, immediate completion, instant delivery. Sweat shops do that, not skilled, well-paid labor. If we are to provide ourselves with Something New to last us all our lives and be handed down in trust to our children, we desire a precious heirloom, not a cheap bauble.

Meeting expediency and immediate need is one thing and laying firm foundations for a shelter to humanity in the years to come is quite another. But we must see that the house we build has room for recreation and music and art as well as dogmas and budgets.

The average American has had too little time for culture and pure enjoyment, and this is Something New which he deserves. Chasing around in cars and loafing in pool halls are not satisfying, any more than is being obliged to sink into bed stone tired after hard work at small pay. As Will Durant says, we have need to be less Roman and more Grecian.

We have looked up to material things and wage scales and economic legislation until our eyes are weary. The old gewgaws of other holidays grow stale. The old forms of political "protection" have been quicksands. The home-folks know that and we pin our faith on them, rather than upon some of their elected spokesmen.

AND finally, the holiday season is synonymous of sweetness and light. Your dour-faced, Calvinistic uplifter has no welcome on our hearthstones. Our pursuit of the social ideals we crave must be set to music Allegro, with cheerful song and time out for warmth and jest. For these are part of the new picture we all hope to paint and the realm in which we all hope to dwell. Anything else than this would be distasteful, even irreconcilable with the spirit of the holidays that should be preserved and perpetuated through the year.

So poke the fire, light the candles, and enjoy to the fullest the season's cheer. But do not draw the shades, for if there is ever a time to let our lights of hope and confidence in each other shine out upon the snows of despond, this is the hour.

My heartiest wish for readers of BETTER CROPS WITH PLANT FOOD is Better Times with social justice.

EXPERIENCE

A general and a colonel were walking down the street. They met many privates, and each time the colonel would salute he would mutter, "The same to you."

The general's curiosity soon got the better of him, and he asked:

"Why do you always say that?"

The colonel answered:

"I was once a private and I know what they are thinking."

"Well, my boy, what did Santa bring you?"

Three-year-old: "Aw, I got a little red chair, but it ain't much good. It's got a hole in the bottom of it."

Judge: "Are you positive that the defendant was drunk?"

Officer (growling): "No doubt."

Judge: "Why are you so certain?"

Officer: "Well, I saw him put a penny in the patrol box on Fourth Street, then look up at the clock on the Presbyterian Church and shout: 'Gawd! I've lost fourteen pounds weight!' "—*Typo Graphic.*

IMMATERIAL

Math. Prof.—"Now, if I subtract 25 from 37 what's the difference?"

Little Willie—"Yeah! That's what I say. Who cares?"

THEIR LOSS

A drunk was swaying back and forth on the sidewalk when the cop stepped up and asked him what he was doing and where he lived.

"Right there," he said, pointing to a house, "but I rang the bell and (hic) nobody anshered."

"How long ago was that?" asked the cop.

"Oh (hic) a couple of hours."

"Well, why don't you try again?"

"Aw t-hell with 'em—let 'em wait."

It is said if every boy in the United States could read every girl's mind, the gasoline consumption would drop fifty per cent.—*The Broadcaster.*

Two Scotchmen took dinner together in a restaurant. After dinner, the waiter brought the check. The two sat and talked for a couple of hours, after which conversation failed, and they merely smoked in silence. At one a.m. one of them got up and telephoned to his wife.

"Dinna wait up any longer for me, lass," he said, "it looks like a deadlock."

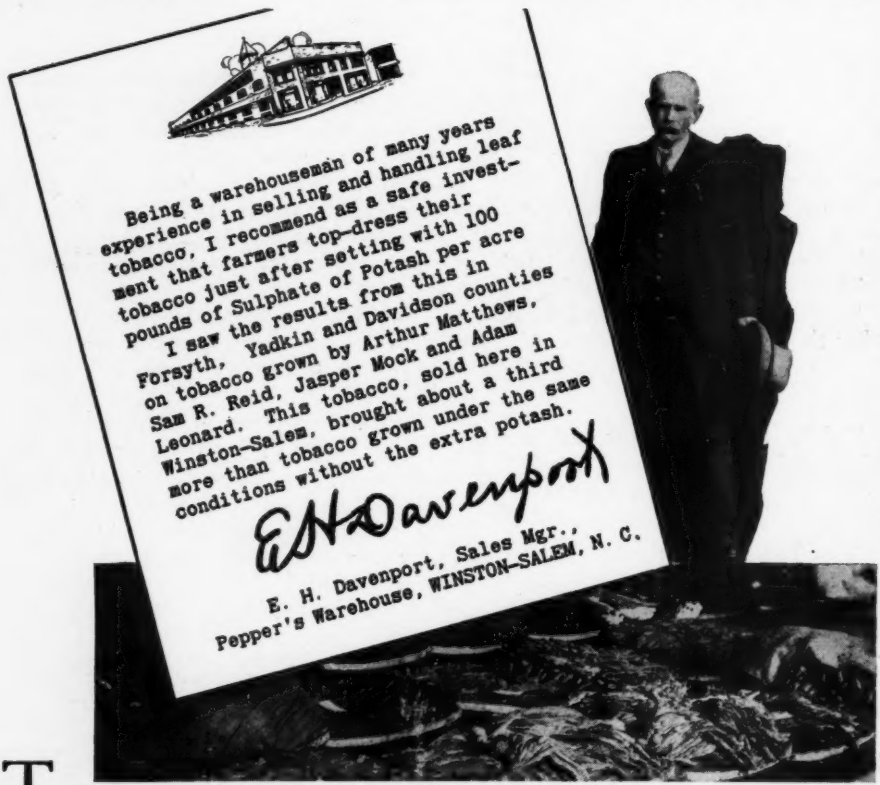
He: "They tell me the Colonel is a Sexagenarian."

She: "The old fool! And at his age, too!"

Tobacco given plenty of

NV SULPHATE OF POTASH

brought a third more money


Being a warehouseman of many years experience in selling and handling leaf tobacco, I recommend as a safe investment that farmers top-dress their tobacco just after setting with 100 pounds of Sulphate of Potash per acre
I saw the results from this in Forsyth, Yadkin and Davidson counties on tobacco grown by Arthur Matthews, Sam R. Reid, Jasper Mock and Adam Leonard. This tobacco, sold here in Winston-Salem, brought about a third more than tobacco grown under the same conditions without the extra potash.
E. H. Davenport
E. H. Davenport, Sales Mgr., Pepper's Warehouse, WINSTON-SALEM, N. C.

THE total fertilizer used by the farmers mentioned by Mr. Davenport analyzed about 3-8-8 to 3-8-10. Tell your fertilizer man that you want such a mixture this season. If you use 3-8-3, apply 200 pounds of **NV** Sulphate of Potash with each ton of fertilizer used. Extra potash can also be applied as a top-dresser—100 pounds of **NV** Sulphate of Potash per acre at the first plowing.

POTASH PAYS ON ALL CROPS — NV — POTASH EXPORT MY., Inc.

Tobacco is a potash-loving crop. Extra potash adds extra pounds to every acre and extra quality to every pound. **NV** Sulphate of Potash is the quality-producing element in fertilizer. It helps your tobacco produce less trash and more cash—bigger yields of smooth, high-quality leaf which brings the best prices. Give your tobacco plenty of **NV** Sulphate of Potash. IT PAYS!

N. V. POTASH EXPORT MY., Inc., Hurt Building, Atlanta, Ga.

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